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OXC - 2750
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4 December 1961

MEMORANDUM FOR : Chief, Development Branch, DFD-JD/P

SUBJECT : Trip Report (OXCART)

1. Visits were made to Lockheed (Burbank), Edwards AFB (Main Base only), and M-H (Minneapolis) by [redacted] during the period 27-30 November 1961 to review details of the OXCART program. The itinerary followed was:

Monday, 27 November	LAC, Burbank
Tuesday, 28 November	LAC and Edwards AFB
Wednesday, 29 November	Edwards AFB and LAC
Thursday, 30 November	M-H, Minneapolis

Subjects of discussion and individual with whom discussed were as follows:

Barrier barrier [redacted]
Sonic fatigue experience with the X-15
Use of INS for roll and pitch presentation to pilot
Telemetering security
SSB radio antenna installation
Preliminary INS flight test program
Planning and reporting flight tests
Recorder for EPIC information
Sonic boom program
SAS, Autopilot, ADC

Edwards AFB
M-H, [redacted]

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AUTH: HR 70.2
DATE: 090272 REVIEWER: [redacted]

Each of these subjects is covered in the following paragraphs.

2. Barrier. A briefing and inspection tour were given to two Lockheed engineers (introduced as "contract engineering consultants", no tie-in with Lockheed mentioned) and [redacted] by the barrier test engineering supervisor at Edwards AFB. This base has been the site for all Air Force barrier testing in recent years and the experience there covers all known equipment in use or planned by the Air Force. The purpose of this trip was to ensure that LAC be quantitatively aware of the latest information on barriers.

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25X1A 3. Sonic fatigue experience with the X-15. This subject was covered in an X-15 symposium at Edwards AFB during the week of 20 November 1961, at which LAC representatives were present. [] had received this information and could foresee no problem with the OMCART vehicles at this time.

25X1D 4. Use of INS for roll and pitch presentation to pilot. By adding very limited wiring and a switch, roll and pitch presentation from the INS can be given on the pilot's attitude indicator. This would serve to provide a check on proper operation of the INS prior to turning on the autopilot and also an alternate source in event of failure of the ship's system remote gyro for this indication. This modification is considered highly desirable although not essential.

25X1A 6. SSE radio antenna installation. There have been no changes from the original LAC proposal. No problems were foreseen by [] who said this subject would be further discussed at the 12 December supplier's meeting.

25X1A 7. Preliminary INS flight test program. LAC proposes to accomplish this test.

25X1A 8. Planning and reporting flight tests. My ideas on this subject were discussed informally in a non-directive manner with [] These ideas are not in accord with Mr. G. L. Johnson's and were presented only to show my thoughts. With Mr. Johnson's present system there can be no knowledge external to LAC as to flight test planning.

25X1D 9. Recorder for [] information. [] reported that a meeting had been held between Eastman-Kodak, M-H (Florida), and LAC, with the resultant recommendation that the camera and INS contractors come up with a joint solution for this item. This direction was to be given after processing by LAC. This is considered an essential item.

10. Sonic Boom program. A quick look was taken at some raw data gathered in this program. At 35,000 feet and M=1.53 a B-58 generated shock overpressure was about 2.4 paf. At 60,000 feet and M=2.0, the B-58 overpressure was about 1.43 paf. An overpressure of this magnitude is well within the audible range. A speed record attempt for a

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coast to coast flight, supersonically, in the B-58 has been proposed to provide additional information.

11. SAS, Autopilot, ADI. The visit to K-H was primarily for orientation and project review. The technical problems of remaining concern are (1) whether the aeroelasticity predictions for the vehicle will be borne out, and (2) whether the servomechanisms to which the SAS inputs are given will perform properly without excessive degradation of the SAS. These are flight test items. The lack of contractual coverage for fully testing the equipment was also pointed out by K-H.

12. Recommendations. In view of the probable interest to this organization in the results of the sonic boom program, it is recommended that NASA contacts be queried as to the preliminary results of this program. It is further recommended that support be given, if necessary, to assure conduct of coast to coast record flight so that the high altitude-high Mach number effects may be more plainly defined.

SIGNED

[Redacted Signature Box]

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